

Overview

added +0
plus
join

more than add altogether
ADDITION
and increased by combined
sum
together
total

decrease minus less than gave
subtract **SUBTRACTION** fewer
shared less take away difference

times
multiple split
MULTIPLICATION
multiplied increased
by by
product total

twice
equal groups
divided by parts
goes into per percent
DIVISION
quotient share equally split up
divided into half

When using four operations, we learn to:

- Add and subtract integers
- Primes
- Multiply up to a 4-digit number by a 2-digit number
- Short division
- Division using factors
- Estimation
- Long division
- Common factors
- Common multiples
- Squared & Cubed Numbers
- Order of Operations (BIDMAS)

Addition, subtraction, multiplication and division is useful learning because it is used in many areas of everyday life – e.g. shopping, cooking, or playing games. It also forms the basis for lots of other maths ideas.

Addition, Subtraction, Multiplication, Division Methods

Column Addition: Start with the ones – add each column in turn, regrouping where needed.

| | | | | |
|-----|----|---|---|---|
| TTh | Th | H | T | O |
| 3 | 4 | 3 | 9 | 6 |
| + 5 | 8 | 1 | 2 | 4 |
| 9 | 2 | 5 | 2 | 0 |

Short Multiplication

$$\begin{array}{r} 6425 \\ \times 7 \\ \hline 44975 \\ 4213 \end{array}$$

-Move regrouped numbers to the next column. After the next multiplication, add the regrouped number.

Short Division

$$\begin{array}{r} 845r2 \\ 3 \overline{) 32537} \end{array}$$

Remember to record remainders after the letter 'r'.

Long Multiplication

$$\begin{array}{r} 21 \\ 3862 \\ \times 34 \\ \hline 15448 \\ 115860 \\ \hline 131308 \end{array}$$

-Remember to use the zero as a placeholder before multiplying the 10s.

Long Division

LONG DIVISION

$$\begin{array}{r} 71357 \\ 7 \overline{) 3571357} \end{array}$$

Dividend: A number to be divided by another number.
 Divisor: A number divided into another number.
 Quotient: The number that results from dividing one number by another number.
 The ANSWER

Divide ÷
 Multiply x
 Subtract -
 Bring down ↓

*Check that your quotient has a digit above every # in your dividend.
 *Check your answer by multiplying your divisor by your quotient.

Times Tables/ Order of Operations/ Squared & Cubed Numbers

| x | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|----|----|----|----|----|----|----|----|----|-----|-----|-----|-----|
| 1 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 2 | 2 | 4 | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 | 22 | 24 |
| 3 | 3 | 6 | 9 | 12 | 15 | 18 | 21 | 24 | 27 | 30 | 33 | 36 |
| 4 | 4 | 8 | 12 | 16 | 20 | 24 | 28 | 32 | 36 | 40 | 44 | 48 |
| 5 | 5 | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 | 55 | 60 |
| 6 | 6 | 12 | 18 | 24 | 30 | 36 | 42 | 48 | 54 | 60 | 66 | 72 |
| 7 | 7 | 14 | 21 | 28 | 35 | 42 | 49 | 56 | 63 | 70 | 77 | 84 |
| 8 | 8 | 16 | 24 | 32 | 40 | 48 | 56 | 64 | 72 | 80 | 88 | 96 |
| 9 | 9 | 18 | 27 | 36 | 45 | 54 | 63 | 72 | 81 | 90 | 99 | 108 |
| 10 | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 | 110 | 120 |
| 11 | 11 | 22 | 33 | 44 | 55 | 66 | 77 | 88 | 99 | 110 | 121 | 132 |
| 12 | 12 | 24 | 36 | 48 | 60 | 72 | 84 | 96 | 108 | 120 | 132 | 144 |

Order of Operations

The order that we carry out a calculation is important. BODMAS helps us to remember the correct order.

| | |
|-------------------------|--|
| B Brackets | $10 \times (4 + 2) / 10 \times 6 - 60$ |
| O Order | $5 + 2^2 / 5 + 4 - 9$ |
| D Division | $10 \div 6 \div 2 / 10 \div 3 - 13$ |
| M Multiplication | $10 - 4 \times 2 / 10 - 8 - 2$ |
| A Addition | $10 \times 4 + 7 / 40 + 7 - 47$ |
| S Subtraction | $10 \div 2 - 3 / 5 - 3 - 2$ |

Mental Calculations, Estimation and Reasoning: We should use these techniques alongside known number facts (e.g. knowledge of times tables) to work out more complex problems.

Squared Numbers


2^2

| | |
|---|---|
| 1 | 2 |
| 3 | 4 |

$2 \times 2 = 4$

...result from a number being multiplied by itself. Squared numbers include 1, 4, 9, 16, 25, 36, 49, 64, 81 and 100

Cubed Numbers



$2^3 = 8$

...result from a number being multiplied by itself twice.

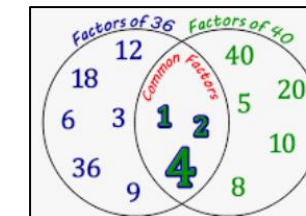
Common Factors, Prime Numbers and Common Multiples

Factors: A factor is a number that you multiply with another number to get a product. A product is the solution to a multiplication problem.

Factor Rainbow for 24



The factors of 24 are 1, 2, 3, 4, 6, 8, 12 and 24. These numbers can be multiplied with another to make 24.



Common factors are factors of 2 or more numbers. e.g. the common factors of 36 and 40 are 1, 2 and 4.

Prime Numbers: Prime numbers can only be divided by itself and 1. There are no other factors.

| | | | | | | | | | |
|----|----|----|----|----|----|----|----|----|----|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 |
| 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 |

Common Multiples

Multiples of 6:

| | | | | | |
|---|----|----|----|----|----|
| 6 | 12 | 18 | 24 | 30 | 36 |
|---|----|----|----|----|----|

Multiples of 8:

| | | | | |
|---|----|----|----|----|
| 8 | 16 | 24 | 32 | 40 |
|---|----|----|----|----|

24 is a common multiple of both 6 and 8.

Key Vocabulary

Addition Multiplication Division Subtraction Integer Estimate Squared Cubed Factor Prime Number Reasoning